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# Simulating Disability in Universal Design Teaching: A Critique

Abandoning Try-It-Yourself in Teaching Universal Design in Architecture

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**Abstract.** Blindfolding people and providing them with white cane or placing them in a manual wheelchair for 20-60 minutes is a much used and classic exercise when teaching architects and other professionals the basics of user needs related to disability. This method, called try-it-yourself, is the most prevalent method where universal design is taught in the Nordic region.

While the exercise is often praised for ensuring an effective ‘eye-opening’ outcome, the ethical aspects, the absence of the users themselves or the possibilities of alternative methods for teaching user needs appear to be non-existing.

The article is based on literature studies and 1:1 experience gained from our Master program in universal design, where the try-it-yourself exercise is analyzed and discussed. The article argues that the exercise, as opposed to its original intention, appears to increase disability stigma and ethical dilemmas. Hence, it needs to be challenged as the prevalent exercise used for teaching universal design and accessibility. The article also discusses alternative methods for teaching user needs.

Furthermore, the article discusses the tacit cultural acceptance of the exercise, as well as the ethical dilemmas in the non-existing debate of what is actually being tried-yourself in the exercise. The article also presents possible reasons for the significant absence of an open critical debate about the pros and cons of the exercise, as it is being used non-critically in the Nordic region.

**Keywords.** Teaching, Universal design, Simulation exercise, Architecture, Disability, Ethics, User involvement

## 1. Background: teaching accessibility in the Danish context

The ability to design an inclusive built environment based on principles of universal design (UD) and with the aim of ensuring access for all, regardless of abilities, requires knowledge of both design processes and user needs. Hence, the matter should ideally be taught as a core subject in architecture and design schools, which is not always the case in the Nordic region. Most architecture and design schools have offered courses, longer or shorter, within the subject matter, but the subject is rarely included consistently in the design school curricula.

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The use of 'try-it-yourself' simulation exercises is prevalent when teaching UD or accessibility, and it is furthermore considered a decisive element in a UD curriculum [1]. In the Danish context, the most prevalent exercise used in teaching UD and accessibility, whether it is a 3-hour introduction course or a design course lasting a semester, is the 'try-it-yourself-exercise. This method is based on the principle of the students simulating various impairments for a limited time. First using a wheelchair, then being blindfolded or using simulation glasses and using a white cane, and lastly using headphones to minimize auditory inputs. In other words, the students are to some degree testing out the building environment while simulating being a wheelchair user, visually impaired or hearing impaired. The exercise is offered in Denmark by a few consultancy groups with an extensive experience in organizing the exercise and with the needed assistive technology equipment offered as part of a teaching-package.

In Denmark, the exercise was introduced into architecture and design curricula in the early 1990's, when the Aarhus School of Architecture created an introductory course to accessibility and taught it consistently from 1995 to 2007. Simulating impairments while using a wheelchair or being blindfolded using a white cane while navigating a pre-defined route, and making notes and observations, was a core part of the introductory course for 1st year students. The outcome of this 'try-it-yourself-exercise' is described as 'Playing the role of a disabled person gives real insight into how architects can contribute to lessen the difficulties disabled people encounter at home and in the outside world' [2]. Since the mid 1990's the simulation exercise from Aarhus has been copied and used in other design and architecture schools, as well as other educational institutions related to the building sector, e.g. engineering, construction and occupational therapy. Furthermore, the exercise is also quite prevalent as a means to draw attention to the subject matter on a political level, and numerous local citizen councils and disability policy groups have been exposed to the exercise, often documented by the local press and published in newspapers or aired on local tv.

The commonly used set up for the exercise is a brief introduction to accessibility regulations, user needs and safe use of the equipment (manual wheelchairs, white canes and head phones), followed by on-site testing of an existing building environment. Most often participants are asked to follow a pre-designated route through a building while performing a number of pre-defined tasks, such as going to the bathroom and buying lunch at a shop or a canteen. The participants are divided into groups and take turns using the wheelchair, the white cane/blindfold and the headphones. The group is furthermore asked to assist each other through the pre-defined route and tasks. The exercise ends with an assessment of experiences and observations together in the large group. The exercise is mainly presented as a means to test the physical environment and the implications of design details as experienced through assistive technology. Yet, most people who have tried the exercise describe it as 'testing a disability' or as 'simulating a disability'. Many, who have tried the exercise, also point to it as being an 'eye-opener', and as an 'unforgettable experience', which has changed their understanding of how disabled people navigate and what it is like to experience a space as a disabled person [3].

In the Danish context, the 'try-it-yourself' exercise not only dominates the field of teaching and disseminates issues of accessibility in the built environment, but it is not challenged by other methods nor is the ethical as well as professional aspects and outcomes of the exercise critically debated.

## **2. Users as objects or partners**

Questioning the use of try-it-yourself as the prevalent method in teaching accessibility and user needs in architecture and design curricula points to aspects of simulation and phenomenology, models of disability/environment relations as well as ethics of user representation.

Experiencing the built environment is a universal quality of being in the world. We all sense, register and exist as a human body in a physical world; our perceptions are unique, and personal, based on our physiology and individual perceptions. In his work Merleau-Ponty emphasizes the importance of our individual bodies as a means of perception, and how the use of tools, or assistive technology becomes extensions of our bodies in our perception. Hence our perception of the world is different and unique for each and every one; "Every external perception is immediately synonymous with a certain perception of my body, just as every perception of my body is made explicit in the language of external perception. (...) we have found underneath the objective and detached knowledge of the body that other knowledge which we have of it in virtue of its always being with us and of the fact that we are our body" [4]. With his work Hall contributes to this understanding by emphasizing the interactive and mutually reflective dialogue between our past and present experiences; "Man learns from what he sees, and what he sees influences what he learns" [5]. Hence, this understanding of human experiences raises the question whether we can simulate perceptions that are not our own, as perceptions are individual and dependent on physiology as well as perceptions.

In her work, the Norwegian researcher Lid also supports this understanding of human perception as individual and defined by our personal starting point as well as being situated in a specific context. In her work regarding knowledge and our use of knowledge in learning, Lid points to 'situated knowledge' as key to understanding the user in the field of UD [6]. Lid describes the importance of understanding how individual perceptions of space is 'situated knowledge' because it relies on the individual user's individual starting point (physical, sensory, cognitive and psychological) as well as the physical and social context. Furthermore, she points to the importance of understanding the person and the assistive technology (e.g. the wheelchair or the white cane) as one unit where the use and potential of the two as extensions of each other cannot be simulated. Hence, the experienced quality of a given space also relies on the individual perception and how implications of the design details or the overall spatial design is assessed or valued are equally individual, and cannot be simulated.

Ray Lifchez, an American architect, has investigated ways of teaching architecture students at UC Berkeley about user needs in ways that emphasize the users as equal peers in a mutual dialog of how to accommodate user needs in architectural design. In his work, Lifchez points to the importance of ensuring a framework based on equality in which the students can learn from the users, while both parties remain the experts in each their field: students as experts of architectural design and users as experts of spatial perceptions as a disabled user. In order to secure a dignified and ethical dialogue, neither party is assuming or simulating the role of the other. When asked to assess the organization and outcome of the design studios after completion, both the students and the users consistently assessed the design studios developed by Lifchez to be incredibly positive and rewarding [7].

Lifchez's development of a design studio at UC Berkeley's architecture program reflected the parallel development of the social model of disability as a reaction to the pre-existing medical model. While the medical model regarded disability and

impairment to be a personal matter with a focus on medical treatment and cure, the social model introduced a significant change in understanding the relationship between body and environment. The social model acknowledges disability as a human condition not to be healed and attitudinal barriers as being a social matter; physical barriers in the built environment are considered decisive for exclusion. The later development of the bio-psycho-social model of disability increases as well as details the complex interrelation between individual, physiology and the built environment, while emphasizing the role of dignity and the equality of disabled users in society [8].

In the Danish context, UD is a recent concept, perceived as a concept, which includes all users through a lifetime perspective; hence, diversity in ability is very high and complex. Accessibility is perceived differently in terms of user understanding as the user is regarded a disabled users, and in general primarily as wheelchair users or visually impaired users [9].

### **3. MUDT as case**

Master in Universal Design and Accessibility (MUDT) is offered as a part time further education master degree program (60 ECTS in total) at the Danish Building Research Institute at Aalborg University Copenhagen. The target group of the master program is Danish and Norwegian professionals working in the building sector, and hence the students represent the interdisciplinary reality of the building chain; architects, landscape architects, engineers, occupational therapist, anthropologist etc.

The Master program covers several topics related to UD in the built environment like the history of UD, quality assessment, user needs and strategic implementation of UD [10]. In the module focusing on understanding user needs, we test and discuss different means of acquiring knowledge of users and user needs. This includes three different exercises; 'try-it-yourself', 'walking together' and 'qualitative interviews'. The 'try-it-yourself' exercise is organized as previously described in this article, in order to reflect common practice. 'Walking together' is organized so that the students walk together with a young disabled person through a given building complex for 2-4 hours. They are to define their own route and activities during that time, but are encouraged to move through both indoor and outdoor spaces, share a meal together and identify interesting spatial situations where the design is particularly accommodating. The aim of this exercise is to bring the two parties together as equals and through mutual observations and dialog acquire knowledge of the other persons needs with regard to the design of the built environment. They are also encouraged to take photos or films and make notes of their mutual observations. Afterwards the new acquired knowledge is shared and discussed in the classroom. The last task that the students perform consists of qualitative interviews with the same disabled person as in the 'walking together' exercise and primarily in the partner's home, if possible. The 'walking together' and the 'qualitative interviews' both include some element of observations.

The aim of using three different methods is to be able to analyze and critically discuss the ethical implications as well as the data outcome of the different methods. Hence the students are not asked to conduct 'try-it-yourself' in order to learn about and understand what it is like to experience a curb cut or a steep ramp while using a wheelchair, but rather to be able to critically discuss the implications and outcome of the exercise compared to other methods of learning about user needs and user representation. We do this to increase the students' awareness of the ethical implications of simulating

a disability for only a brief period, and make them critically compare the role of the user in the different exercises as well as the knowledge of user needs, which they acquire using the different methods.

The students' response to the three different methods points to several learning outcomes; they are generally surprised to learn that there are other valid and professionally acknowledge methods than 'try-it-yourself', as they have not been exposed to them in the context of accessibility. They assume great responsibility in the two other exercises for ensuring a mutual ethical framework between themselves and the disabled partner, and they express their own surprise by the amount of knowledge they acquire through the two other exercises, as well as the complexity of this newfound knowledge. They are extremely critical of try-it-yourself after having been through the two other exercises, and offer many reflections of their own former practice and approach to users, when gathering information on user needs. They do not all propose that try-it-yourself should be absolutely abandoned, but they are all very critical of the outcome and the ethical implications of user representation in the exercise.

#### **4. Discussion**

If the exercise continues to be un-questioned as the prevalent and only method used in disseminating issues of universal design in the building environment, it may contribute to a static understanding of both design solutions and user perception. If students of UD are not introduced to the diversity of user needs and the diversity of coping strategies found among the many users, and hence to the possibilities of diversity in design solutions, the risk of continuing understanding users as 'one' and using prescriptive-based design solution is significant. Furthermore, the 'try-it-yourself' exercise increases the risk of understanding user needs as represented through assistive technology – and a very simplistic representation of this – rather than through a complex combination of personality, disability, historic and cultural context as well as situated possibilities. Hence, the exercise also represents an understanding of disability as represented in the medical model. The absence of user representatives themselves in the exercise also represents an ethical dilemma, as the users' individual coping strategies, responses and attitudes towards possible barriers in the physical environment are not part of the observations or perceptions of the students, and hence the risk of increasing stigma is quite high. Even if the intention is the opposite. The lack of an equal and mutual dialogue between the students and the disabled users present a one-way learning situation, where the users are not present to discuss the students' experiences with their own. Lifchez developed his design studio in order to avoid this risk of increasing stigma, when he considered the disabled users not as objects of study, but as equal dialog partners defined as consultants rather than users. Placing the disabled users as equal dialog partners, like in the 'walking together' exercise, offers the disabled users a possibility of discussing other and more complex aspects of disability than just those of prescriptive measurements of their assistive technology. This includes a user representation that meets the ideal of the bio-psycho-social disability model rather than the medical model.

Simulation of disability appears to be generally accepted in the Danish context, most probably because of the historic development of the exercise at the Aarhus School of Architecture concurrently with the increase in accessibility requirements in the Danish Building Regulations. But the MUDT students might also point to a reason for the

uncritical acceptance of the exercise as prevalent, when they admit to their own lack of knowledge of other options, as well as a tacit agreement not to criticize the exercise. Yet, Lid as well as Merleau-Ponty and Hall in their work show how our perceptions of space and form are individual and dependent on our individual physiology and personality. This understanding of our individual and personal perception of our own body includes assistive technology as extensions of ourselves, when being used every day and all the time, as is most often the case for disabled users. Hence, using a wheelchair for 30-60 minutes or being blindfolded with the constant option of a sneak peak cannot be simulated or even close to tried-yourself. Yet no one appears to question what is being tried, and what knowledge is being collected using the 'try-it-yourself' exercise.

MUDT students point to their experience of having tested a curb cut in a wheelchair and being unable to navigate the curb even with the use of all their strength, leaving them with an understanding of the task as being very hard. Only to experience later on, when meeting the same curb cut with a disabled user in the 'walking together' exercise, that he had no problem navigating the curb. Only then did they realize the shortcomings of their own perceptions of the try-it-yourself exercise. The MUDT students' reflections and perceptions emphasize the need to be critical of the try-it-yourself exercise and as a minimum introduce teaching and discussion of situated knowledge, phenomenology and ethics when using the try-it-yourself exercise.

Furthermore, Lifchez in his design studio also emphasized the inclusion of very different users as well as user needs, and hence succeeded in introducing a diversity of both user needs and coping strategies to the students. This appears to be contradictory to the try-it-yourself exercise as it is being practiced in Denmark, where only three types of impairment are introduced, and without any variation in degree or impairment within the three types. These two different approaches towards impairment reflect the differences in the medical and the social models as well as the differences in user understanding in the two different design concepts of universal design and accessibility. Teaching user needs and user perceptions through try-it-yourself emphasizes the understanding of the user as seen through the medical model, and does not enhance a more open, complex, creative and individual understanding of who the users are, what their needs are and how to accommodate diversity of user needs through a diversity of design solutions. Hence, the Danish approach to teaching the subject matter appears to be a reflection of a medical model approach without this being challenged or questioned.

Focusing on a few impairments and simplifying the use of assistive technology connected to the impairments, raises critical questions with regard to both representation and stigma. Simulating blindness by blindfolding a student and giving her a white cane for a very limited time increases the risk of stigma and pity towards people living e.g. with a visual impairment. This risk is illustrated by the quote of a student participating in a simulation exercise in a Norwegian UD teaching program: "Oh! It is so difficult being blind, groaned architecture student WJ from NTNU" [1].

The fact that most participants, as well as numerous organizers, of the simulation exercise frame it as 'simulation of impairment', points to ethical as well as pedagogical aspects of the exercise appearing to be if not prevalent then actually the only one used, when teaching about user needs and user perceptions related to universal design in the built environment. The absence of alternative exercises as well as a critical professional debate about the implications of simulating impairment points to a discussion of what the exercise offers in reality and whether it should be replaced by other means and methods in order to increase awareness, empathy and dignity while teaching UD in design and architecture programs.

## 5. Perspectives

If accessibility and universal design is to be developed into an integrated aspect of a professional debate on architectural quality and social sustainability, it is decisive to open up a constructive and critical discussion on who the users are and how to accommodate their needs. This process needs to be based on a realistic and dignified understanding of users, and not only of their needs but of their role as equal dialog partners rather than study objects. Hence, it is quite relevant to question the prevalent and unchallenged use of 'try-it-yourself- the way it is being practiced in the Danish context. Alternative methods need to be introduced, discussed and developed, so that the potential qualities of 'try-it-yourself' as a method is enhanced and understood in comparison to other methods, and in a dignified and equality based way of understanding disabled users and their expertise.

If the future development of the field can move this way, it might open up for a different professional understanding of universal design and accessibility as an architectural means to accommodate the reality of all users, and not only disabled users.

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